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## Reference

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# Prosthesis use in adult acquired major upper-limb amputees: patterns of wear, prosthetic skills and the actual use of prostheses in activities of daily life

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## Products

### Myoelectric vs Body-powered vs Cosmetic prostheses

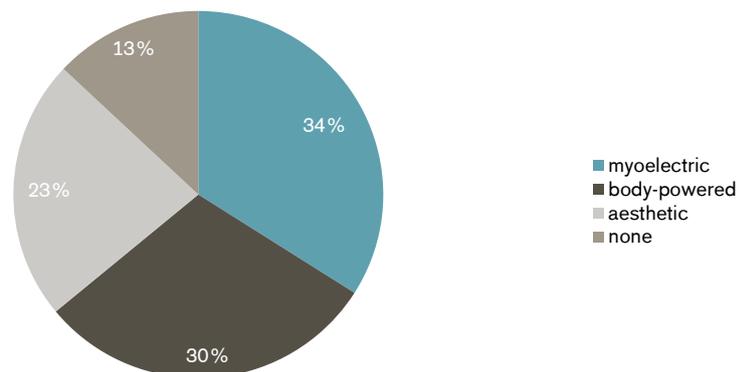
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## Major Claims

Prosthetic use in adult amputees:

- **80.8% amputees wear prostheses**
- **90.3% consider their most worn prosthesis to be useful**
- **Most prevalent prosthesis among adult amputees is myoelectric**
- **Prostheses are used in only ½ activities of daily living**
- **Increased actual use was associated with sufficient prosthetic training**

### The most worn prosthesis



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## Population

Subjects:	181 upper limb amputees (71% forearm/wrist, 29% elbow/upper arm)
Previous:	average of 2,5 prosthesis per a patient, mostly combination of myoelectric and body-powered
Amputation causes:	not listed
Mean age:	54.7 years
Mean time since amputation:	28.6 years

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## Study Design

Cross-sectional study

The purpose of this study was to describe prosthesis wear and perceived prosthetic usefulness as well to describe prosthetic skills and actual use of prosthesis in activities of daily life (ADL).

## Results

Body Function		Activity			Participation	Others	
Mechanics	Pain	Grip patterns / force	Manual dexterity	Activities of daily living (ADL)	Satisfaction and Quality of life (QoL)	Training	Technical aspect

Category	Outcomes	Results for Myoelectric vs Body-powered vs Cosmetic prostheses	Sig.*
Activities of daily living	Clinical testing and interviews (n=50 patients)	Myoelectric prosthesis is used more than other prosthesis in ADL.	+
		With myoelectric prosthesis it is easier to perform bimanual tasks	+
		Bilateral amputees tend to use their prosthesis more than unilateral amputees (in 2/3 of ADL).	+
		Higher scores for "housework", "shopping" and "desk procedures" with myoelectric prostheses.	+
		Lower scores for myoelectric prostheses for "cooking and washing", "eating", "communication".	-
		Compensatory movements in myoelectric prosthetic users involved shoulder, shoulder girdle or torso.	n.a.
Satisfaction	Questionnaire (self-designed) (n=181 patients)	Average prosthesis wearing time is 4h per day.	n.a.
		82% amputees are satisfied with their prosthesis.	n.a.
		Cosmetic prostheses were most useful for improving appearance.	-
		Myoelectric and body powered prostheses were more useful for ADL than cosmetics prostheses.	+
		44% amputees needed adjustment of the prosthesis less than once a year; 22% more than 4 times a year	n.a.
		65% amputees received a prosthetic training (only 44% of them rated a training as important for their prosthetic use)	n.a.

\* no difference (0), positive trend (+), negative trend (-), significant (++/--), not applicable (n.a.)

## Author's Conclusion

"Prosthesis wear was found in 80.8% with each prosthesis wearing upper limb amputees (ULA) possessing an average of 2.5 prostheses at survey. The majority wore their most worn prosthesis for >8 hours a day. Our findings suggest that major ULAs choose to wear the prosthetic type(s) that best meet their functional needs and that these preferences are extremely individualised. In the process of fitting an ULA with a new prosthesis, type-specific usefulness profiles as those provided in our study may give a valuable contribution to an informed decision. The prosthesis-

wearing amputees in our sample were mainly satisfied with their prostheses, reported their prostheses as useful and showed good prosthetic skills in ADL tasks – but did not use their prostheses for more than about half of the ADL tasks carried out in everyday life. Our findings suggest that in unilateral ULAs, individualised and targeted prosthetic training may increase optimal, active prosthesis use in ADL and that the effect of sufficient prosthetic training on the Actual Use Index (AUI) may be mediated by a decrease in one-handed task performance. Individualised prosthetic training should probably be mandatory at every prosthetic fitting and extra prosthetic training should probably be offered when the functional needs of the amputee change. Furthermore, our findings suggest that fitting the amputee with myoelectric rather than passive prostheses may increase prosthesis use in ADL, regardless of amputation level. Prosthetic skills did not affect every day prosthesis use in our material.” (Østlie et al. 2012)

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